Remarks

In the Final Office action of November 24, 2010 claims 1-18 and 20 (all pending claims) were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee et al. (US 2004/0151171 A1) in view of Ovadia et al. (US 7,266,295 B2), Ohba et al. (US 6,101,193) and Ge et al. (US 6,819,870 B1).

The Office action attempts to combine the distinct teachings of four documents in order to make a case for obviousness, the number of references needing to be combined being itself an indicator of possible nonobviousness. Still, even combining all four of these referenced documents, the claimed invention is fundamentally different from the combination. The patent to Ovadia et al. is the new referenced added to those cited in the previous Office action. Applicant's comments made in the prior response regarding the three already cited references of Lee et al. Ohba, and Ge et al. continue to apply and are reasserted. The Ovadia patent that is newly brought into the argument teaches synchronous slotted systems, while the claimed invention instead addresses asynchronous systems.

Regarding claim 1 and its dependent claims 2-12, Lee et al. describes an optical router having N input ports and N output ports (Fig. 2 and par. [0037], lines 3-6) where the inputs and outputs are wavelength division multiplexed (par. [0033], lines 1-6). A controller and scheduler of the router, upon receiving an output request, checks whether a available wavelength channel exists, and if not the data from units in a buffer (par. [0060], lines 19-24). However, Lee does not teach that the buffer unit has electronic variable delays, is "adjustable from below to above the duration of a packet", nor that the "predefined number" of vacant wavelengths are greater than one. Ohba teaches

classifying data packets by their packet length, thereby improving the fairness characteristics of the network by suppressing the burstiness of data traffic. (col. 8, line 62 - col. 9, line 11) Ge et al. describes a system (col. 3, lines 34-37; col. 5, lines 26-36; col. 8, lines 6-23) for sorting packets according to length before scheduling these packets onto a wavelength. The system will try to schedule the shortest packet first. If only a single wavelength is vacant, the packet will be scheduled to a fiber delay line (FDL) and then processed at the output of the FDL. The differences between Ge et al. and the present invention have been previously pointed out.

The newly cited Ovadia patent teaches that queued packets of an optical network can be transferred in time-slots, where a time-slot of fixed or variable length is allocated for reserving a bandwidth. The time-slot can be present at one wavelength or spread over several wavelengths. Ovadia's system is time-slotted with periodic time-division-multiplexed (TDM) channels (col. 5, lines 32-35), i.e., is synchronous. Because the system is a slotted system, the time when the time-slot for a specific TDM channel becomes available is predetermined. That is, it is predetermined when one or more wavelengths are vacant. In contrast, our present claimed system is asynchronous and it is therefore not predetermined when wavelengths become available. Furthermore, because Ovadia employs a time-slot allocatioan for reserving bandwidth (Ovadia, col. 5, lines 18-19), a burst of data is scheduled across a predetermined and fixed number of vacant wavelengths. This kind of scheduled event occurs periodically at predetermined times. In contrast, in our asynchronous system, rather than Ovadia's fixed number of wavelengths, there must be a defined minimum number of vacant wavelengths before any

packet is scheduled. Because of the asynchronous network, in our system scheduling occurs at random times, rather than at Ovadia's predetermined time slots, and the actual number of vacant wavelengths employed may be higher than the defined minimum, rather than fixed. Hence, the mechanism applied by Ovadia is not applicable in our system, even in combination with any one or more of the other cited teachings, because Ovadia's mechanism is based on knowing in advance exactly how many wavelengths become available and exactly when they become available, as these happen periodically in Ovadia's time slotted system. Instead, our system applies continuous monitoring of the number of vacant wavelengths, since it is not known in advance in our asynchronous system when wavelengths will become available.

It is asserted in the Office action that Ovadia's expression "where the reserved time slots can be fixed duration or variable duration" is equivalent to our recited "have electronic variable delays". However, Ovadia never mentions any electronic variable delays, nor are variable delays required for Ovadia to implement variable length time-slots. In Ovadia, varying the length of a time-slot enables the functionality of allocating a TDM channel bandwidth according to the length of the time-slot (Ovadia, col. 5, line 26). The variable duration TDM channels (time-slots) are still transmitted periodically in Ovadia's synchronous system, and because the time-slots occur periodically (Ovadia, col. 5, lines 32-35), delays between the scheduling of bursts are fixed, not variable, in Ovadia's system.

These arguments also apply to the method claims 13-18 and 20.

In order to clarify those distinctions, independent claims 1 and 13 are amended to recite that the scheduling of

data output occurs "non-periodically and et a non-predetermined" moment, in contrast to Ovadia. The present claimed optical switch is patentably distinct from the combined teachings of all four cited documents. Together the four references do not reach the present claimed invention.

Conclusion

Applicant requests reconsideration of the claims in view of the amendments and remarks made hrein. A Notice of Allowance is earnestly solicited.

The Examiner is requested to contact the undersigned attorney prior to an Office action at 408-297-9733 between 9:00 AM and 5:00 PM PST.

You are authorized to charge any fee deficiency or credit any overpayment to Deposit Account No. 19-0590.

CERTIFICATE OF TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing System in accordance with § 1.6(a)(4).

Signed: Sally Azevedo

Typed Name: Sally Azevedo

Date: February 23, 2011

Respectfully submitted,

Mark Protsik

Mark Protsik
Reg. No. 31,788

Schneck & Schneck
P.O. Box 2-E
San Jose, CA 95109-0005
(408) 297-9733